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CARTOGRAPHIC ACTIVITIES IN ETHIOPIA*

1983-1986

(Submitted by the Government of Socialist Ethiopia)

* By the Ethiopian Mapping Agency.

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Introduction

1. During the past five years, various steps were taken by the Government to strengthen the Ethiopian Mapping Agency. Actions taken include policy support for institutional re-organization and growth, acquisition of equipment and manpower training.

2. At present the Agency is fully responsible for survey, mapping, aerial photography and geographic research. It also provides cartographic service to government and private organizations.

3. Additional equipment such as printing presses and computers were acquired either to replace or to supplement existing ones. An adequate number of employees have undergone pre-service and in-service training as well as training abroad.

Geodetic Survey

4. To provide basic ground control data for national topographic mapping programmes geodetic controls are extended over an area of over 75,000 sq. km. during this reporting period. These areas are regions of relatively high potentials with regard to resources.

5. The geodetic survey in these regions is based on existing first order trigonometric controls. These controls are densified with second and third order points by conventional methods to establish photo control points for mapping. In difficult terrain where conventional methods are inapplicable doppler survey method was employed to fix control points for national series of topographic mapping.

6. Geodetic control nets were also extended in regions where large scale mapping and engineering survey data were required. The controls for these works are of second and third order for specific isolated surveys necessary for irrigation, hydroelectric dam construction and other related development schemes.

Land Survey

7. Large scale mapping activities were carried out for various development projects in the country. Maps are prepared at scales ranging from 1:500 to 1:10,000 in more than thirty different areas. The maps and survey data were required for implementation of projects for irrigation, hydroelectric dams, water resource development and other engineering works such as town planning.

Aerial Photography

8. Ethiopia is covered by 1:50,000 or 1:40,000 scale wide angle aerial photographs flown in conjunction with 1:50,000 and 1:250,000 scales topographic mapping projects. Some of these photographs are fairly old but are still often used where appropriate maps of particular areas are not available or for thematic mapping purposes. From 1980 to 1985 about 244,500 sq. km. of area has been flown at 1:50,000 or 1:40,000 scale.

9. Large scale photographs ranging from 1:8,000 to 1:20,000 covering major towns, agricultural and hydroelectric dam sites are also available. The photographs are used for large scale mapping and photo interpretation.

Topographic Mapping

10. Different scale topographic maps are produced by the Agency to fulfill particular requirements. The often requested standard national topographic map series are at scales of 1:250,000 and 1:50,000.

11. It requires 97 sheets of the standard 1:250,000 scale series to cover the entire country. There is complete national coverage at this scale and, consequently, demand and circulation is relatively high. However, since the maps were prepared and published from 1965 to 1972, they are out-of-date and the vegetation component in particular needs periodic revision. It has not been possible to up-date these maps as desirable because of other work priorities.

12. The Ethiopian Mapping Agency has been engaged in the production of standard national topographic map series at 1:50,000 scale since 1971. To cover the whole country at this scale, over 1,700, fifteen by fifteen minutes quadrangle, map sheets are required. The choice of priority areas for mapping depends on factors such as agricultural, hydroelectric, forest and water resources potentials. Until September 1986, about 22 per cent of the total area, covering the central, western, north western, and south western part of the country has been published. The demand for these maps by government and private organizations involved with development programmes is quite high.

13. In addition, a large number of small scale maps ranging from 1:500,000 to 1:2,000,000 scales dealing with various topics are available at the Agency. Among these are the 1:1,000,000 and 1:2,000,000 topographic maps of Ethiopia.

14. The request for large scale mapping by development organizations with a range of scales from 1:2,000 to 1:10,000 for irrigation, hydroelectric dam sites, town planning and similar other projects is increasing. Since 1983, large scale maps for 18 towns have been compiled for town planning on request of the Ministry of Housing and Urban Planning. All ground control points and the aerial photography required for photogrammetric plotting were provided by the Ministry. Similarly, 24 tasks of other large scale mapping covering an area of over 400,000 hectarea have been compiled and additional work is in progress.

15. Special purpose maps such as land use, soil and geological maps prepared by other ministries were printed by the Agency.

Thematic Mapping

16. Thematic mapping is carried out by the Research and Development Service of the Agency. Besides thematic maps, research is made for the production of geographic literature, national and regional atlases. At present, a multi-color national atlas of Ethiopia and a pilot regional atlas are under preparation. Work on a geographic gazetter to facilitate the location and identification of feature names is in advanced stage of production. In the long run, sustained production of geographical journals and land use maps of Ethiopia will be carried out.

17. In order to increase the capacity of production and revision of thematic maps, atlases and literature concerning information of geographic nature, a remote sensing unit has been established by the Agency. The long range aim of employing the remote sensing technology is to support development efforts of the country. Among other services, the unit will be responsible for processing satellite imageries and distribution of related products to government and public organizations.

Training

18. During this reporting period, employees from the Agency have undertaken pre-service and in-service training as well as training abroad. There are 65 employees in the Survey, 140 in the Mapping and 21 in the Research and Development Departments at professional and semi-professional levels of education. Out of the total, 3 employees from the Agency and some from other government organizations have undergone a six-month in-service training at the Agency. A moderate number of employees have also undergone advanced short and long term training abroad.

Equipment

19. Additional equipment such as printing presses and computers were acquired either to replace or to supplement existing ones. The standard basic survey and mapping equipment are available at the Agency. To maximize utilization of equipment, manpower is deployed on a shift basis. To supplement and complement the logistic and map production equipment of the Agency, those not available at the Agency such as GPS systems, helicopters and aircrafts are acquired on rental basis.